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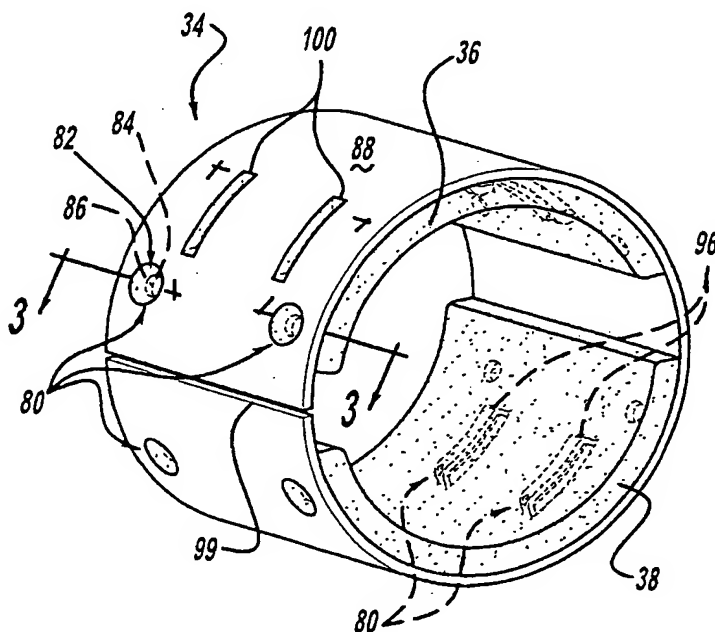
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(54) Title: ANCHORING SYSTEM FOR INJECTION MOLDED MAGNETS ON A FLUX RING OR MOTOR HOUSING



(57) Abstract: A power tool includes a flux ring with an annular member. At least one molded magnet is received on the annular member. An anchor is on the annular member to retain the at least one magnet on the annular member. The anchor is unitarily formed with the annular member to receive the magnet. The anchor includes at least one bend with a reinforcement member at the at least one bend.

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AMENDED CLAIMS

[received by the International Bureau on 13 August 2001 (13.08.01);
original claims 1, 3 and 11-52 replaced by new claims 1, 3 and 11-47;
remaining claims unchanged (8 pages)]

1. A flux ring, comprising:
an annular housing;
at least one magnet molded onto said housing; and
an anchor on said housing retaining said at least one magnet on
5 said annular housing, said anchor unitarily formed with said housing and a
reinforcement member on said anchor for strengthening said anchor.
2. The flux ring according to Claim 1, wherein said annular housing
being metal.
3. The flux ring according to Claim 1, wherein said anchor including
a bend and said reinforcing member positioned at said bend.
4. The flux ring according to Claim 3, wherein said anchor projects
radially from said housing.
5. The flux ring according to Claim 3, wherein said anchor is formed
from said housing and providing an aperture immediate said anchor.
6. The flux ring according to Claim 5, wherein said magnet molds
around said anchor and into said aperture.
7. The flux ring according to Claim 3, wherein said anchor has an
overall rectangular shape with two ends connected to said housing with
reinforcement members at bends.
8. The flux ring according to Claim 7, wherein one end is connected
to said housing.
9. The flux ring according to Claim 3, wherein said anchor has an
overall L-shape with one end connected to said housing.

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10. The flux ring according to Claim 3, wherein said anchor has an overall T-shape with one end connected to said housing.

11. A flux ring, comprising:
an annular housing;
at least one magnet molded onto said housing;
a first anchor on said housing retaining said at least one magnet
5 on said annular housing, said anchor unitarily formed with said housing;
wherein said first anchor includes an aperture, said aperture
including a counter-sink portion on an exterior surface of said housing, a
second anchor on said housing; and
a reinforcing member on said second anchor for strengthening
10 said second anchor.

12. The flux ring according to Claim 11, wherein said molded magnet enters said aperture, forming a rivet-shaped member.

13. The flux ring according to Claim 11, wherein said second anchor including a bend and said reinforcing member positioned at said bend.

14. The flux ring according to Claim 13, wherein said second anchor is a portion of said housing and having an aperture immediate said second anchor.

15. The flux ring according to Claim 14, wherein said magnet molds around said second anchor and in said aperture.

16. The flux ring according to Claim 13, wherein said second anchor has an overall rectangular shape with two ends connected to said housing.

17. The flux ring according to Claim 16, wherein one end is connected to said housing.

18. The flux ring according to Claim 13, wherein said second anchor has an overall L-shape with one end connected to said housing.

19. The flux ring according to Claim 13, wherein said anchor has an overall T-shape with one end connected to said housing.

20. The flux ring according to Claim 10, wherein said anchor has a truncated cone shape.

21. The flux ring according to Claim 20, wherein said truncated cone has an axial aperture.

22. A motor comprising:
a stator assembly, said stator assembly including a flux ring comprising:
an annular housing;
at least one magnet molded onto said housing;
an anchor on said housing retaining said at least one magnet on said annular housing, said anchor unitarily formed with said housing and a reinforcement member on said anchor for strengthening said anchor;
an armature rotatable within said stator assembly;
a commutator rotatable with said armature and connected to said armature via a shaft; and
brush assemblies associated with said commutator.

23. The motor according to Claim 22, wherein said annular housing being metal.

24. The motor according to Claim 22, wherein said anchor including a bend, said reinforcement member positioned at said bend.

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25. The motor according to Claim 24, wherein said anchor is projecting radially inward from said housing.
26. The motor according to Claim 24, wherein said anchor is a portion of said housing and having an aperture immediate said anchor.
27. The motor ring according to Claim 24, wherein said magnet molds around said anchor and in said aperture.
28. The motor according to Claim 24, wherein said anchor has an overall rectangular shape with two ends connected to said housing with reinforcement members at the bends.
29. The motor according to Claim 24, wherein one end is connected to said housing.
30. The motor according to Claim 24, wherein said anchor has an overall L-shape with one end connected to said housing.
31. The motor according to Claim 24, wherein said anchor has an overall T-shape with one end connected to said housing.

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32. A power tool comprising:
a housing;
a motor in said housing, said motor comprising:
a stator assembly, said stator assembly including a flux ring
5 comprising:
an annular housing;
at least one magnet molded onto said annular housing;
an anchor on said housing retaining said at least one magnet on
said annular housing, said anchor unitarily formed with said annular housing
10 and a reinforcement member on said anchor for strengthening said anchor;
an armature rotatable within said stator assembly;
a commutator rotatable with said armature and connected to said
armature via a shaft;
brush assemblies associated with said commutator;
15 a power supply;
an output member coupled with said motor shaft; and
an actuator member electrically coupled between said motor and
said power source for energizing and de-energizing said motor which, in turn,
rotates said output member when said motor is energized.
33. The power tool according to Claim 32, wherein said annular housing being metal.
34. The power tool according to Claim 32, wherein said anchor including a bend and said reinforcement member at said bend.
35. The power tool according to Claim 34, wherein said anchor is projecting radially inward from said annular housing.
36. The power tool according to Claim 34, wherein said anchor is a portion of said annular housing and having an aperture immediate said anchor.

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37. The power tool according to Claim 34, wherein said magnet molds around said anchor and in said aperture.

38. The power tool according to Claim 34, wherein said anchor has an overall rectangular shape with two ends connected to said annular housing with reinforcement members at the bends.

39. The power tool according to Claim 34, wherein one end is connected to said annular housing.

40. The power tool according to Claim 34, wherein said anchor has an overall L-shape with one end connected to said annular housing.

41. The power tool according to Claim 24, wherein said anchor has an overall T-shape with one end connected to said annular housing.

42. A motor comprising:
an annular housing;
at least one molded magnet received on said housing;
a first anchor on said housing retaining said at least one magnet
5 on said annular housing, said anchor unitarily formed with said housing,
wherein said anchor includes an aperture, said aperture including a counter-
sink portion on an exterior of said housing, and a second anchor on said
housing;
a reinforcement member on said second anchor for strengthening
10 said second anchor;
an armature rotatable within said stator assembly;
a commutator rotatable with said armature and connected to said
armature via a shaft; and
brush assemblies associated with said commutator.

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43. The motor according to Claim 42, wherein said molded magnet enters said aperture forming a rivet-shaped member.

44. The motor according to Claim 42, wherein said anchor including a bend and said reinforcing member positioned at said bend.

45. A power tool comprising:
a housing;
a motor in said housing, said motor comprising:
a stator assembly, said stator assembly including a flux ring
5 comprising:
an annular housing;
at least one molded magnet received on said annular housing;
a first anchor on said housing retaining said at least one magnet
on said annular housing, said anchor unitarily formed with said annular
10 housing, wherein said anchor includes an aperture including a counter-sink
portion on said annular housing, a second anchor on said housing;
a reinforcement member on said second anchor for strengthening
said second anchor;
an armature rotatable within said stator assembly;
15 a commutator rotatable with said armature and connected to said
armature via a shaft;
brush assemblies associated with said commutator;
a power supply;
an output member coupled with said motor shaft; and
20 an actuator member electrically coupled between said motor and
said power source for energizing and de-energizing said motor which, in turn,
rotates said output member when said motor is energized.

46. The power tool according to Claim 45, wherein said molded magnet enters said aperture forming a rivet-shaped member.

47. The power tool according to Claim 45, wherein said anchor including a bend and said reinforcement member at said bend.